

Date: Monday, 05/01/2009 7:58:08 AM  
 User: Linda Lacelle

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : WHEEL SHAFT  
 Job Number : 44363  
 Estimate Number : 10449  
 P.O. Number : Part Number : D33341  
 This Issue : 05/01/2009 S.O. No. : Drawing Number : D3334 REV. C  
 Prsht Rev. : NC Project Number : N/A  
 First Issue : / / Type : MACHINED PARTS Drawing Revision : C  
 Previous Run : 43190 Material :  
 Written By : Due Date : 31/01/2009 Qty: 10 Um: Each  
 Checked & Approved By : JLD 09.01.05  
 Comment : Est: B 05.03.02 Revised material; Added Powder Coat KJ/J  
 LM  
 Est Rev:C Now on Doosan Lathe 08-03-06 JLM Verified  
 By:EC  
 Est Rev:D Now Rev C 08-05-14 JLM Verified By:DD

## Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 M4140HR3500 4140 RD bar 3.500



Comment: Qty.: 0.6563 f(s)/Unit Total: 6.5630 f(s)

4140 HEAT TREATED BAR

Material: AISI 4140 or ASTM A304-02/A-434-BC/A193-03-Grade-B7/A29-03/A322-91 or UNS# G41400

(M4140H-R3.500)

Batch: M109877

*Ref 09/01/08*

2.0 BAND SAW BAND SAW



Comment: BAND SAW

1- Cut blanks: Ø3.500" Bar to 7.750" long

*Ref 09/01/08*

3.0 DOOSAN LATHE DOOSAN LATHE



Comment: DOOSAN LATHE

1- Turn and Mill as per Folio FA492 and Dwg D3334

2- Deburr

Test Thread with Test Nut for every part

*Ref 09/01/07*

4.0 QC2 INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

*Ref 09/01/07*

*10*

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: D3334-1 PAR #: N/A Fault Category: Prod Engineering <sup>Cardinal</sup> NCR: (Yes) No DQA: D Date: 09/01/14  
 Resolution: Scrap <sup>Process revised</sup> Disposition: Scrap QA: N/C Closed: D Date: 08/01/14

NCR: <u>44363</u>		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector	
			Initial Chief Eng	Action Description Chief Eng	Sign & Date				
<u>09/01/14</u>	<u>30</u>	<u>drilling not lined up with center drill! Corrected program so this won't happen. RC program error.</u>	<u>[Signature]</u>	<u>Scrap piece + replace. Fixed program by adding Cvalue for drilling orientation after center drilling to ensure drill follows center drill.</u>	<u>[Signature]</u> <u>09/01/14</u>	<u>[Signature]</u> <u>09-01-06</u>	<u>[Signature]</u> <u>09/01/14</u>	<u>[Signature]</u> <u>09-01-06</u>	

NOTE: Date &amp; initial all entries

Date: Monday, 05/01/2009 7:58:08 AM  
User: Linda Lacelle

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: WHEEL SHAFT

Job Number: 44363

Part Number: D33341

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC8

SECOND CHECK



Comment: SECOND CHECK

SA

09/01/08

10

6.0

POWDER COATING

POWDER COATING



M 18052



10X

Comment: POWDER COATING

Powder Coat Fire Red (Ref: 4.3.5.10) as per QSI 005 4.3

\*\*\*Mask thread and bearing surface\*\*\*

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

12:50  
320 OF  
1:20

M-1

09/01/09

7.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT

A.M

09 01 10

10

8.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location:

483

9/1/12

SP

9.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/01/14

Job Completion



ME 09-01-12

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 44363
<b>Description:</b> Wheel Shaft		<b>Part Number:</b> D3334-1
<b>Inspection Dwg:</b> D3334	<b>Rev:</b> C	<b>Page 1 of 1</b>

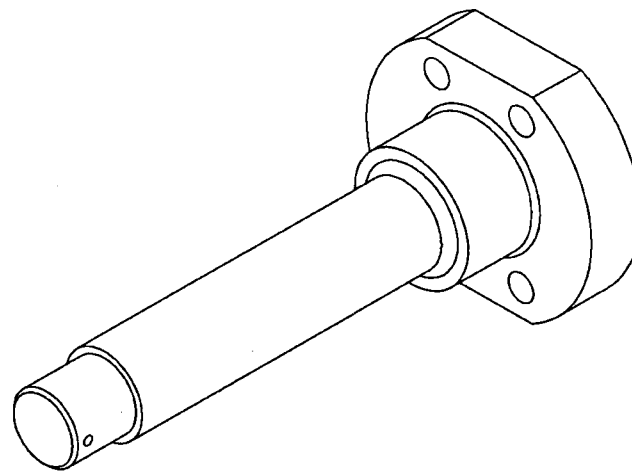
### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.94	+/-0.030	.94				
0.200	+/-0.010	.200				
Ø0.129	+0.005/-0.000	.128				
4.740	+0.000/-0.030	4.735				
1.04	+/-0.030	1.040				
Ø1.750	+/-0.010	1.748				
0.750	+/-0.010	.750				
1.180	+0.000/-0.002	1.1785				
2.250	+/-0.005	2.250				
1.125	+/-0.010	1.125				
3.060	+/-0.010	3.060				
Ø0.386	+0.006/-0.001	.387				
1.300	+/-0.005	1.300				
Ø3.470	+/-0.010	3.470				

<b>Measured by:</b> [Signature]	<b>Audited by:</b> [Signature]	<b>Prototype Approval:</b> N/A
<b>Date:</b> 09/01/07	<b>Date:</b> 09/01/08	<b>Date:</b> N/A

Rev	Date	Change	Revised by	Approved
A	05.04.26	New Issue	KJ/JLM	
B	08.05.06	Tolerance for dimension Ø0.386 revised	KJ/DD	
C	08.05.14	Dimensions updated per Dwg Rev C	KJ/JLM [Signature]	[Signature]



**D3334-1 WHEEL SHAFT**

**NOTES:**

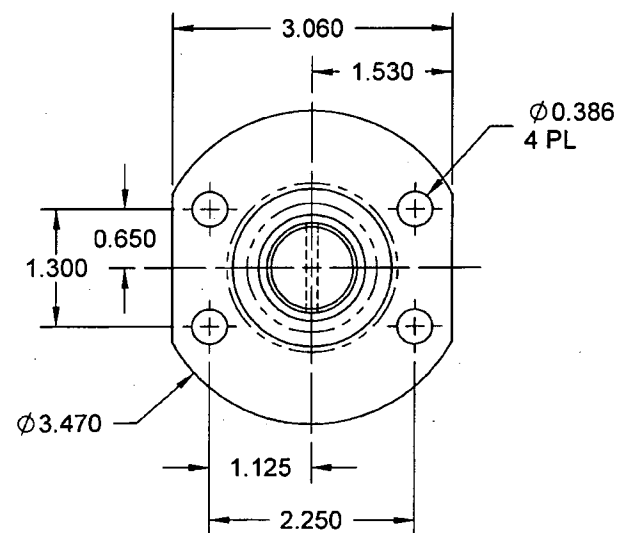
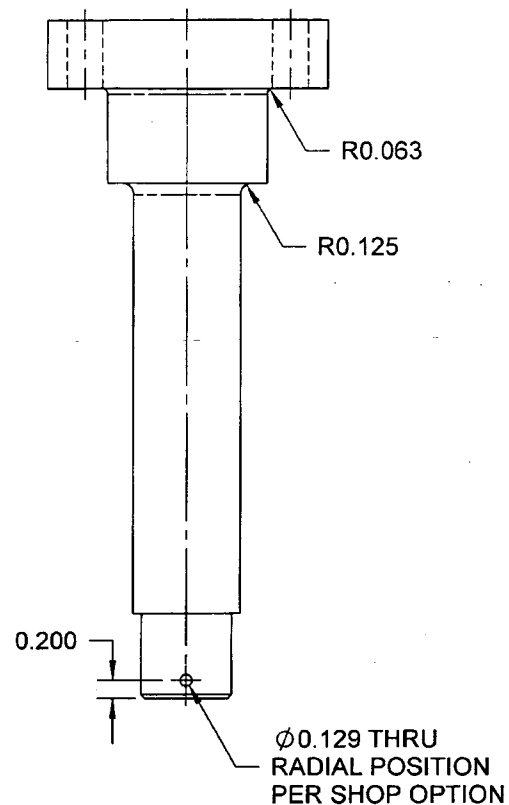
- 1) MATERIAL: AISI -4140 OR ASTM A304-02/ A-434-BC/ A193-03-GRADE-B7/ A29-03/ A322-91  
OR: UNS#-G41400  
(REF. DART SPEC. M4140H-R3.500)
- 2) FINISH: POWDER COAT COLOUR FIRE RED (4.3.5.10) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.010 TO 0.020 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3334-1" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 4.03 lbs

C	INCORPORATED B1 (Ø3.470 WAS 3.500). REFORMAT TO CURRENT STANDARDS. TOP VIEW ADDED. ZN C3-2 7.47 REF WAS 7.468. ZN B3-2 THREAD CALL OUT WAS 1-14 UNF. ZN C5-2 COTTER PIN HOLE LOCATION (RADIAL) CHANGED TO SHOP OPTION.	AJS	08.05.12
B	REDESIGN TO FIT NEW WHEEL ASSY.	MB	05.02.18
A	NEW ISSUE	MB	04.12.16
REV.	DESCRIPTION	BY	DATE
DESIGN	MB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. C
MFG. APPR.	<i>[Signature]</i>	D3334	SHEET 1 OF 2
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	N/A	WHEEL SHAFT	NTS
DATE	08.05.12	COPYRIGHT © 2004 BY DART AEROSPACE LTD <small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

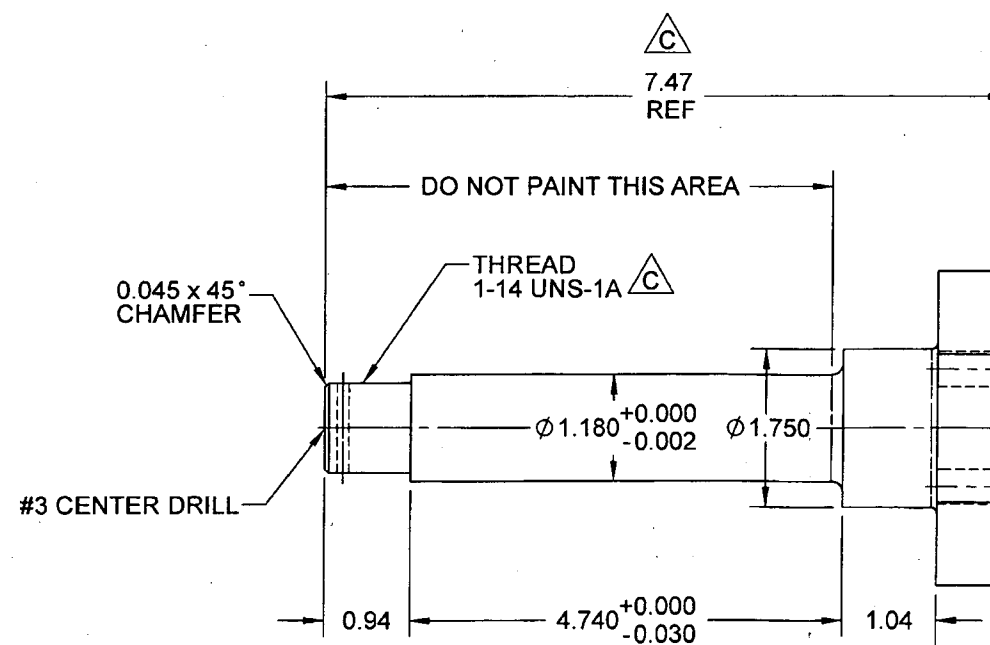
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No. 114363





**D3334-1 WHEEL SHAFT**



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WITHOUT NOTICE  
WORK ORDER

**RELEASED**  
08-05-13  
1044363

DESIGN	MB	<b>DART AEROSPACE LTD</b>	
DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. C
MFG. APPR.		D3334	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.	N/A	WHEEL SHAFT	NTS
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